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ABSTRACT

A quasi-experimental design was employed to determine the effects of a workshop, designed to familiarize teachers and counselors with a technical institute in the North Carolina Community College System, on knowledge and attitudes related to the programs and practices of the institution. Subjects were assigned to experimental and control groups by county of employment and teaching level using a randomly stratified plan. The Test for Evaluation and Planning (TEP), developed for the study, was administered as a pretest for the experimental group, a post-test for the control group, and a four-month followup of the experimental group. Null hypotheses were tested for effects on the criterion variables knowledge and attitudes, their relationship to selected variates, and their durability over time. The variates county of employment, teaching level, prior educational experience with the institution, sex, race, and degrees were not found to be significantly related to changed attitudes. However, race was significantly related to performance on a test of knowledge. A four-month followup indicated significant losses in knowledge and attitudes from post-testing but both remained significantly more positive than for the control group. The major conclusion was that the workshop had created durable changes in attitudes and knowledge. (Author/MS)

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The Effect of an Articulation Workshop on Public School Personnel Knowledge of and Attitudes Toward Educational Programs and Practices of the Sponsoring Technical Institute

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With the steady growth of two-year colleges, the concept of articulation frequently has been cited in the literature. Kintzer (1971) provided a useful definition of the concept by suggesting that articulation is ". . . a process which, when operating properly, provides a continuous, smooth flow of students from grade to grade and school to school (p. 588)." While much of the contemporary literature deals with the flow of students from two-year to four-year colleges, the current problem deals with the same smooth progression of students from secondary schools to the two-year college. Thornton (1966) pointed out that it is the secondary schools who supply many of the students for community junior colleges. Thus, articulation must be concerned with helping the student select areas appropriate to his needs and interests as well as opening up new avenues of educational opportunity. This process is further complicated by the comprehensive nature of the two-year college which offers occupational programs that may or may not be understood and/or appreciated by secondary school personnel or their students.

Central Carolina Technical Institute, a member of the North Carolina Community College System, elected to approach the improvement of the articulation process by offering a workshop for public school personnel designed to provide a broader information base and a more positive attitudual base with respect to the educational programs and practices of the institution. A major assumption of this approach was that by broadening the informational and attitudual bases of teachers and counselors, these persons would be better equipped to assist the students with whom they work. Thornton (1966) suggested that accurate interpretation of community junior colleges is essential to smooth the transition from high school to the two-year college. Furthermore, Blocker et al (1965) suggested that a high school guidance program has a major purpose the goal of assisting students in selecting colleges and that negative feelings because of a lack of knowledge and understanding may exist and which ". . . must of necessity be shared by the student (p. 161)". Others (Grable, 1971; Baker, 1972; Boone, 1973; and Hertig, 1973) concurr with this analysis and suggest that changes in knowledge and attitudes of public school personnel toward occupational programs must occur before these programs will be utilized fully by students. Finally, researchers (Grant, 1960; Sagehorn, 1960; Bergstein and Grant, 1964; and Wolverton and Padgett, 1973) have demonstrated that the guidance function in high schools is often filled by classroom teachers, especially that of providing occupational and vocational information.

The purpose of the current research was not to determine what effect the workshop had on the articulation process but rather to first determine whether the workshop could bring about changes in knowledge and attitudes which were assumed to be related to the process. There is evidence in the literature (Smith, 1970; Kane, 1972; Svob, 1973; and Kintzer, 1973) that similar methods have been used to improve the articulation process. Previous research (Bliss, 1969; Ebbesen, 1969; James, 1969; and Dunn, 1973) has demonstrated that attitudes of various groups toward community/junior colleges are related to direct contact with these institutions. Specifically, Mayo (1973) found a significant relationship between positive attitudes of counselors and attendance

in articulation workshops at community colleges in North Carolina.

Similar research on workshops and institutes has been conducted. Studying attitudes of participants in an institute on problems of school segregation, Rhyne (1968) found significant positive differences in the attitudes of interest even after seven months. Nave (1969) found significant positive changes in knowledge and attitudes related to adult basic education as a result of participation in an institute designed for that purpose. Similarly, Bailey and McNeil (1970) found a significant positive attitude change toward health occupation education as a result of a short term institute at the University of Iowa while Ridley (1971) reported significant cognitive and affective change for participants in an inservice seminar in home economics at Florida State University.

However, Smith and Otto (1969) found no significant changes in attitudes toward reading following an inservice reading improvement course for teachers. Price (1971) was able to demonstrate that significant positive attitudual changes toward segregation resulted from a three week institute but upon testing after four and one-half months, found that the attitudes had regressed to near the same level as upon entry into the institute. Likewise, Murress (1969) found that classroom experiences in teacher education led to more positive attitudes toward teaching but that these gains were short lived once the individual began actually teaching.

With the conflicting results reported in the literature, the principle focus of this study was to determine if the workshop, which exposed participants to the purpose, philosophy, program offerings and operational practices of the sponsoring institution, brought about positive changes in the knowledge and attitudes of public school personnel. The research further sought to determine if these results were related to other variates including teaching level, county where employed, prior educational experience with the sponsoring institution, sex, race, or degrees held and whether these changes were durable over a four month period of time. The variate teaching level represented two groups of participants, those working in grades 9-12 and grades 4-8. The variate county represented the three counties served by the institution. Prior educational experience was defined as whether the subject had ever taken any type of course through the institution. The variate degrees held represented two groups, those with bachelaurate degrees and those holding advanced degrees.

METHOD

Subjects

A randomly stratified sample of 120 subjects was drawn from a pool of applicants for the workshop to give equal balance to the three counties and two teaching levels. For each county, 40 subjects were drawn. In two of these counties, 20 subjects were from each grade level while in the third county 26 were from grades 4-8 and 14 were from grades 9-12. This uneven sample was necessary because a sufficient number of volunteers were not available in the later group. The sample in this case was drawn to represent the proportion of volunteers in each level from that county. Finally, the same sampling plan was used to assign subjects to either an experimental or control group.

Stimulus Materials

Prior to the workshop, 48 behavioral objectives related to knowledge to be gained and 2 behavioral objectives related to specific attitudes to be developed were formulated. A total of 25 objectives, two reflecting attitudes toward the educational programs and educational practices and 23 reflecting knowledge of the major programs and practices, were identified as those for which workshop participants would be held accountable. Each participant was supplied with this information when he enrolled in the workshop. All presenters, while using a variety of instructional techniques, informed workshop participants with which objective(s) he was dealing.

Measuring Instrument

The instrument used, Test for Evaluation and Planning (TEP), was developed to assess attainment of the 25 objectives referenced above. The TEP was divided into three parts, the first gathering biographical information, the second measuring the criterion variable knowledge and the third measuring the criterion variable attitude. Directions were included for each part and none of the test was timed so that it was self administering. The directions ask that subjects not put names on the test booklet to assure anomymity with the interest being more candid responses on the attitudual section.

The TEP section on knowledge contained 23 items scored on a mastery basis so that the maximum possible score was 23 and the higher the score, the more knowledge objectives mastered by the subject. The section dealing with attitudes contained 36 Likert-Type items keyed both positively and negatively so that the higher the attained score, the more positive the attitude.

Procedures

A quasi-experimental design similar to the separate sample pretest/posttest design of Campbell and Stanley (1963) was used to determine the effect of the workshop on the criterion variables. The experimental group (workshop participants) were posttested at the completion of the workshop. The control group (to participate in a subsequent workshop) were pretested after the current workshop was completed. Suchman (1967) indicates these comparisons are permissable provided the groups are equivalent (randomly selected), are selected prior to any evaluation, and no measurement is made until after the treatment is complete.

Fifty-two experimental subjects enrolled in the workshop and were tested during the final session. Of the 60 control group subjects, the researcher attempted to visit 45 in their homes and was successful in securing responses from 41 (92%). The remaining 15 were surveyed by mail and 11 (73%) responded. Complete data were not attained on all subjects in either group and incomplete data were not considered in the analysis. Follow-up data were collected from the experimental group after a four month interval using a mailed survey technique. Thirty-seven (71%) of the 52 subjects contacted responded.

Null hypotheses were tested for the effects of the workshop and the relationship of the controlled variates by means of a 2x3x2 factorial

design. Analysis of the relationship of the treatment effects and the uncontrolled variates could not be done in a complete factorial design because of the small number of subjects holding advanced degrees. Null hypotheses were tested for these relationship's by a 2x2x2x2 factorial design for the variates sex, race, and prior education experience with the institution and by a separate 2x2 factorial for degrees held.

RESULTS

The results of the data analysis are presented in three sections. The first deals with the workshop effects on the criterion variable knowledge while the second deals with the effects on the criterion variable attitudes. The third section deals with the follow-up of the experimental subjects.

Knowledge

The results of the 2x3x2 factorial for treatment effects on the criterion variable knowledge and the relationship of these effects to the controlled variates, county where employed and teaching level, are presented in Table 1. Inspection of these data indicates a significant

Table 1. Analysis of variance of total knowledge objectives mastered for subjects grouped by treatment, county of employment, and teaching level

Source of variance	df	SS	MS	F	P
Treatment (T)	1	3510.85	3510.85	291.70	.0001
County (C)	2	51.10	25.55	2.12	NS
Level (L)	1	117.69	117.69	9.78	.0024
TxC	2	99.37	49.69	4.13	.0188
TxL	1	2.24	2.24	.19	NS
CxL	2	28.13	14.06	1.17	NS
TxCxL	2	39.53	19.76	1.64	NS
Error	91	1094.94	12.03		

main effect for treatment and grade level and a significant interaction between treatment and county. While no specific expectations were held with respect to effect of teaching level and the mastery of objectives the means presented in Table 2 indicate that regardless of treatment, subjects working in grades 4-8 mastered fewer objectives than subjects working in grades 9-12.

While the results presented in Table 1 indicate a significant main effect for treatment, the significant interaction between treatment and county limits a direct interpretation. The graphic representative of this interaction presented in Figure 1 indicates that it is disordinal. The data presented in Table 1 and 2 can therefore be interpreted to indicate that the experiment group had mastery of significantly more knowledge than the control group and that these effects were not significantly related to the variates county where employed or teaching level.

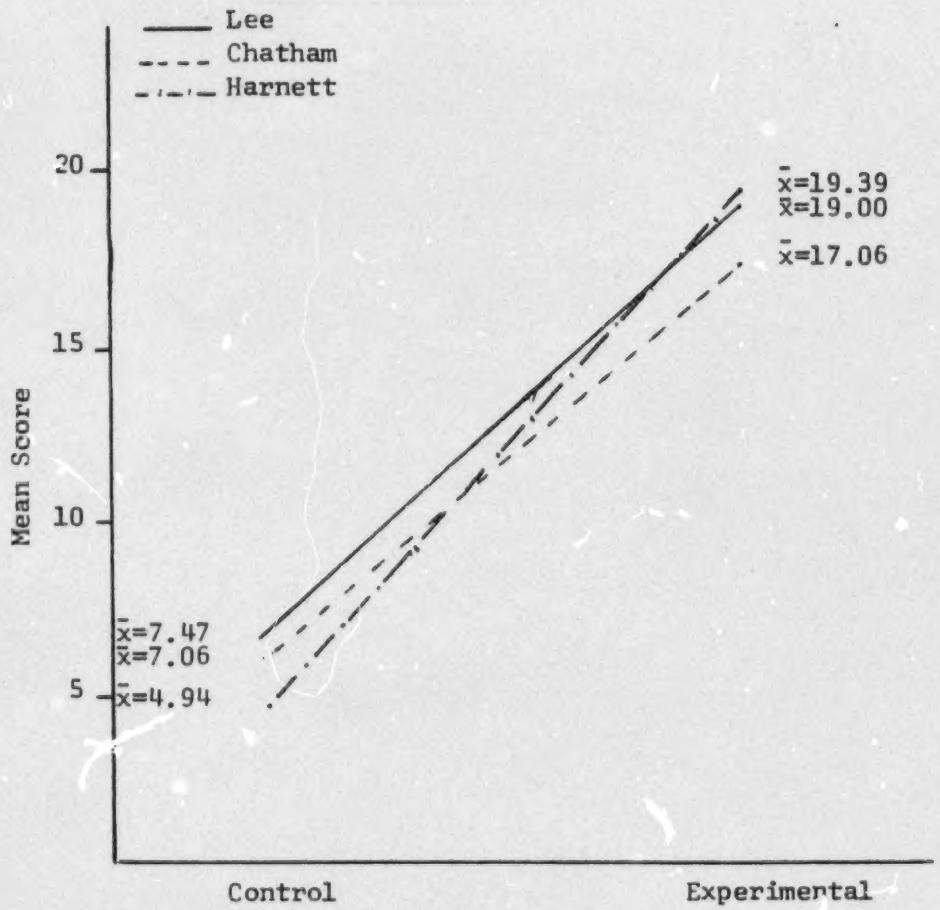

Figure 1. Graphic representation of the treatment by county interaction on the number of knowledge objectives mastered

Table 2. Mean number of knowledge objectives mastered, standard deviation, and number of responses grouped by treatment, county and teaching level

Group	Mean	SD	Number
Treatment:			
Experimental	18.50	3.62	52
Control	6.49	3.82	51
County:			
C1	13.24	6.80	34
C2	12.37	7.94	35
C3	12.06	6.54	34
Teaching Level:			
4-8	11.64	7.33	56
9-12	13.64	6.68	47

Results of the 2x2x2x2 factorial for treatment, prior educational experience with the institution, sex and race are presented in Table 3. Inspection of these data indicate not only the significant main effect for treatment but also a significant main effect for race and a significant interaction between treatment and race, limiting the direct

Table 3. Analysis of variance of total knowledge objectives mastered for subjects grouped by treatment, experience, sex, and race

Source of variance	df	SS	MS	F	P
Treatment (T)	1	1795.71	1795.71	163.43	.0001
Experience (E)	1	5.52	5.52	.50	NS
Sex (S)	1	4.43	4.43	.40	NS
Race (R)	1	182.98	182.98	16.65	.0001
TxE	1	.68	.68	.06	NS
TxS	1	9.82	9.82	.89	NS
TxR	1	48.99	48.99	4.46	.0376
ExS	1	42.11	42.11	3.83	NS
ExR	1	28.32	28.32	2.58	NS
SxR	1	15.28	15.28	1.39	NS
TxExS	1	9.62	9.62	.88	NS
TxExR	1	3.52	3.52	.32	NS
TxSxR	1	17.39	17.39	1.58	NS
ExSxR	1	15.64	15.64	1.42	NS
TxExSxR	1	3.27	3.27	.30	NS
Error	87	955.95	10.99		

interpretation of either main effect. This ordinal interaction is presented graphically in Figure 2. To determine the relationship of race to mastery of objectives, an analysis of simple effects for race within treatment was performed. The results indicated a significant difference between white and non white subjects within only the experimental group. Therefore, the null hypothesis of no relationship between treatment effects and race was rejected. While both white and non white subjects made significant gains through the treatment, the mean number of objectives mastered for white experimental subjects ($\bar{x}$=19.90) was significantly greater than for non white subjects ($\bar{x}$=14.11).

Results of the 2x2 factorial for treatment and degrees held are presented in Table 4 and indicate only the significant main effect for treatment and thus degrees held are not related to the workshop effects.

Table 4. Analysis of variance of total knowledge objectives mastered for subjects grouped by treatment and degrees

Source of variance	df	SS	MS	F	P
Treatment (T)	1	1900.58	1900.58	137.16	.0001
Degree (D)	1	19.84	19.84	1.43	NS
TxD	1	4.91	4.91	.35	NS
Error	99	1371.85	13.86		

Attitudes

The results of the 2x3x2 factorial for treatment effects on the criterion variable attitudes and the relationship of these effects to the controlled variates county where employed and teaching level, are present in Table 5. Inspection of these data indicate only a significant

Table 5. Analysis of variance for total attitude scale scores for subjects grouped by treatment, county of employment, and teaching level

Source of variance	df	SS	MS	F	P
Treatment (T)	1	5697.95	5697.95	43.09	.0001
County (C)	2	213.17	106.59	.81	NS
Level (L)	1	297.47	297.47	2.25	NS
TxC	2	298.43	149.22	1.13	NS
TxL	1	.08	.08	.001	NS
CxL	2	759.79	379.89	2.87	NS
TxCxL	2	130.75	65.37	.49	NS
Error	89	11767.56	132.22		

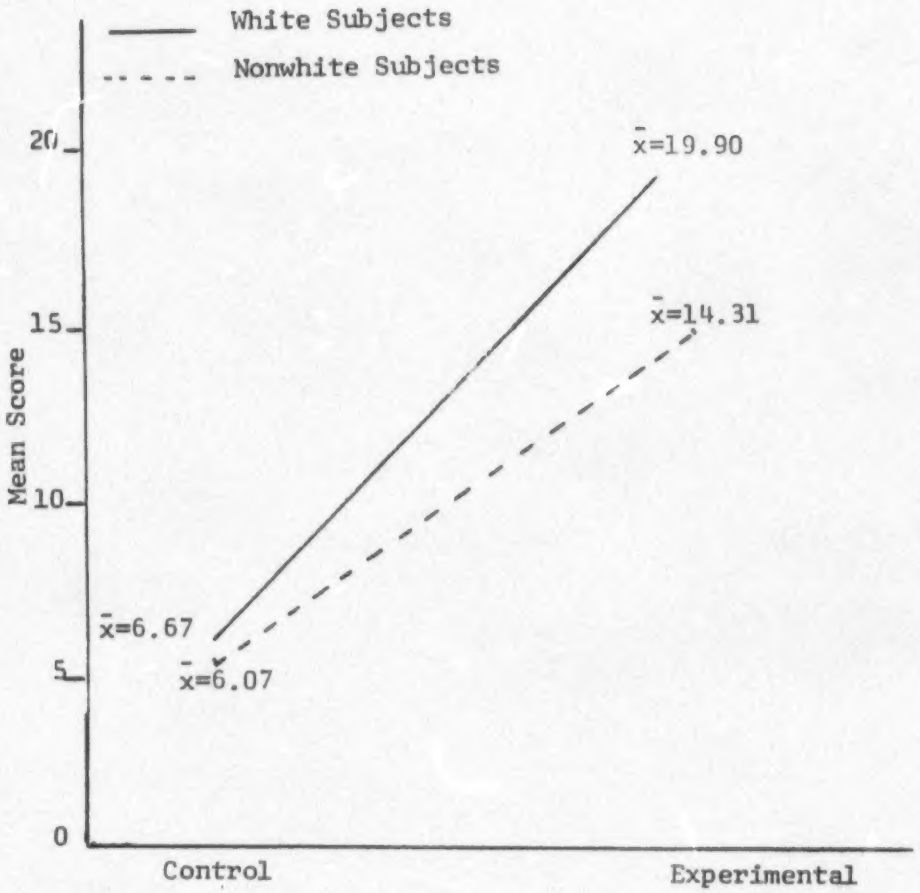

Figure 2. Graphic representation of treatment by race interaction on mean number of knowledge objectives measured

main effect for the treatment. No other significant main effects or interactions were found. The mean attitude scale score for the experimental subjects ($\bar{x}$=156.27) was significantly greater than the control subjects ($\bar{x}$=140.94) and thus the attitude reflected was more positive.

Results of the 2x2x2x2 factorial for treatment, prior educational experience with the institution, sex, and race and the 2x2 factorial for treatment and degrees held are present in Tables 6 and 7. Inspection

Table 6. Analysis of variance for total attitude scale score for subjects grouped by treatment, experience, sex, and race

Source of variance	df	SS	MS	F	P
Treatment (T)	1	2512.14	2512.14	17.24	.0001
Experience (E)	1	80.45	80.45	.55	NS
Sex (S)	1	156.46	156.46	1.07	NS
Race (R)	1	.74	.74	.01	NS
TxE	1	1.56	1.56	.01	NS
TxS	1	302.14	302.14	2.07	NS
TxR	1	1.63	1.63	.01	NS
ExS	1	9.74	9.74	.07	NS
ExR	1	.71	.71	.01	NS
SxR	1	327.74	327.74	2.25	NS
TxExS	1	29.43	29.43	.20	NS
TxExR	1	47.34	47.34	.32	NS
TxSxR	1	91.85	91.85	.63	NS
ExSxR	1	46.65	46.65	.32	NS
TxExSxR	1	.89	.89	.01	NS
Error	85	12387.43	145.73		

Table 7. Analysis of variance for total attitude scale for subjects grouped by treatment and degree

Source of variance	df	SS	MS	F	P
Treatment (T)	1	4189.39	4189.39	30.51	.0001
Degree (D)	1	2.30	2.30	.02	NS
TxD	1	169.84	169.84	1.24	NS
Error	97	13317.11	137.29		

of these data indicates only the significant main effect for treatment on the criterion variable attitudes. Therefore, no relationship was found to exist between treatment effects on attitudes and the variates of interest.

Follow-Up

To determine what effect a time interval might have on the knowledge and attitudes formed as a result of the treatment, the experimental group was surveyed by mail four months after the treatment. With only 71% responding, some question existed as to whether this follow-up group was different from the origional experimental group. Consequently, the two groups were compared on the characteristics of county where employed, teaching level, sex, degree held, and prior educational experience with the sponsoring institution by means of a chi square with no significant differences found. Likewise, the posttest attitude and knowledge scores of the two groups were compared by a t test with no differences in attitudes ($P>.05$) but a significantly ($P<.05$) greater number of knowledge objectives mastered by the follow-up group.

The results of the comparison of the experimental group posttest and follow-up scores for the criterion variables knowledge and attitudes are presented in Table 8. The sum of the deviations is a positive number for both variables indicating a lower score on the

Table 8. Comparison of the criterion variables, knowledge objectives mastered and total attitude scale scores, for the experimental group posttest and follow-up

Variable	N	$\sum d$	$\bar{d}$	SD_d	df	t-value
Knowledge	37	125	3.38	3.33	36	6.18**
Attitudes	37	245	6.62	11.60	36	3.47**

**Significant beyond the .01 level.

second testing. Therefore, a significant regression in both attitudes and knowledge had occurred. Subsequently, the mean knowledge and attitude scores of the control group pretest and experimental group follow-up were compared. These results are presented in Tables 9 and 10. Inspection of these data indicates a significantly greater

Table 9. Comparison of the knowledge objectives mastered by the control group on the pretest and the experimental group follow-up

Group	$\bar{x}$	SD	N	df	t-value
Control	6.49	3.82	51	86	53.58**
Follow-Up	15.78	3.52	37		

**Significant beyond the .01 level.

Table 10. Comparison of the attitude scale scores for the control group pretest and the experimental group follow-up

Group	$\bar{x}$	SD	N	df	t-value
Control	140.94	11.83	50	85	14.27**
Follow-Up	149.16	12.78	37		

**Significant beyond the .01 level.

number of knowledge objectives mastered and a significantly higher (more positive) attitude score for the experimental group even after four months. Thus, while significant regression in both knowledge and attitudes occurred during the four month interval within the experimental group, these subjects were performing at a higher level than the control group who did not receive the treatment.

DISCUSSION

The major conclusion drawn is that the workshop was effective in altering both the knowledge base and attitudual base of public school personnel in the intended direction. Knowledge of and attitudes toward the educational programs and practices were found to be significantly changed through participation and were maintained at a significantly higher level than for non participants. However, some of the specific findings justify further discussion.

The significant main effect for teaching level, with subjects working in grades 9-12 achieving mastery of more knowledge than those working in grades 4-8 was not expected. However, this finding does seem reasonable since those persons working in grades 9-12 are more likely to have had exposure to the programs and practices of the sponsoring institution through their former students, information released by the institution to high schools, and visits from institutional representatives for recruiting purposes. This finding does indicate a need to include persons working in grades 4-8 as recipients of institutional information, especially occupational information similar to that dealt with in the workshop. This is especially true if one assumes that the student begins to ask questions concerning occupations in the middle grades. The results may also imply a need for greater emphasis on occupational information for all teachers and counselors, especially those in the grades 4-8, since many of the knowledge items of the TEP dealt with the nature of the work and the employment opportunities for occupational programs.

The county in which the subjects were employed was not found to be related to treatment even though a significant interaction was found between mastery of knowledge and county where employed. It is concluded that subjects from all three counties, including the one in which the institution is located, entered the workshop at the same level and exited at the same level, each making significant gains on both criterion variables. There is no indication that proximity of ones work setting to the institution has any significant relationship to changing knowledge or attitudes of interest.

For the variates sex, prior educational experience with the sponsoring institution and degrees held, no significant main effects or interactions with treatment were found for either knowledge or attitudes. Likewise, race was not found to be related to attitude change. However, the analysis did indicate that while no differences in knowledge existed between white and non white subjects in the control group, white subjects who participated in the workshop mastered significantly more knowledge than non white subjects. Although, both white and non white experimental subjects performed significantly better than their counterparts in the control group, there is some indication that race is related to increasing the mastery knowledge of the educational programs and practices of the sponsoring technical institute. Since there was no control for race in the design, no definitive conclusions are made. Any future research of this type, however, should control for this variate.

With respect to the follow-up data related to the variable knowledge, two precautions must be stated. First, respondents to the follow-up did master significantly more knowledge than non respondents on the posttest. Secondly, there is no reason to assume that respondents were able to recall the knowledge at the time of the follow-up. By using a mailed survey, the researcher allowed the respondent to utilize his notes and/or other materials collected during the workshop. Thus these follow-up respones may indicate the availability of the information rather than recall. However, it is worth noting that if subjects took the time to search their notes and/or other materials, they could do the same when students or others ask for information. Similarly, it is worth noting that the variable attitudes, while regressing after four months, remained significantly more positive for participants than for the control group who had not attended the workshop. These results may imply that the subjects returned to a more favorable environment than was origionally assumed and which was supportive of the more positive attitudes which were formed.

For the criterion variable attitudes, the findings of this study are congruent with those of Mayo (1973) and those of James (1969) that positive attitudes are related to greater exposure to the institution. These results are also consistent with previous research on similar approaches to changing attitudes (Rhyne, 1968; Nave, 1969; and Ridley, 1971). However, they are not consistent with those of Price (1971) and Murress (1969) who found that attitudes regressed over time to near the same level as they were prior to engaging in intensive educational experiences to alter them.

Finally, this workshop dealt with only one group of volunteers and the generalizability of the results is limited. Further research with nonvolunteer subjects is needed. Further research is also needed to determine if these professionals share the more positive attitudual and knowledge bases with the students with whom they come in contact. These behaviors are assumed to be related to the articulation process and the research demonstrated that a workshop could change them. Whether these will be ultimately passed on or shared with public school students must still be demonstrated. Further data is currently being collected in an attempt to make this determination.

LIST OF REFERENCES

Bailey, T. J., and K. McNeil. 1970. Evaluating short-term educational institutes. J. Indus. Teacher Educ. 7:25-31.

Baker, G. E. 1972. The teachers' role in career education. School Shop 32:35-37.

Baker, R. L., and R. E. Schutz (eds.). 1972. Instructional Product Research. Van Nostrand Company, New York.

Bergstein, H. B., and C. W. Grant. 1961. How parents perceive the counselor's role. Personnel Guid. J. 39:698-703.

Bliss, R. S. 1969. Attitudes toward selected junior college concepts in the Salt Lake Valley. Unpublished EdD thesis, University of Utah, Logan.

Blocker, C. E., R. H. Plumner, and R. C. Richardson. 1965. The Two-Year College: A Social Synthesis. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Boone, J. L. 1973. Postsecondary educators discuss their role in career education. Am. Voc. J. 48:32-33.

Campbell, D. T., and J. C. Stanley. 1963. Experimental and Quasi-Experimental Designs for Research. Rand McNally, Chicago.

Dunn, J. B. 1973. North Carolina public school superintendents' attitude toward the North Carolina community college system. Unpublished EdD thesis, North Carolina State University at Raleigh.

Ebbesen, J. A. 1969. Junior college board members: Their personal characteristics and attitudes toward junior college functions, State of Illinois, 1968-69. Unpublished EdD thesis, Northern Illinois University.

Glass, G. V., and J. C. Stanley. 1970. Statistical Methods in Education and Psychology. Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Grable, J. 1971. Allies or adversaries? High school and junior college. Clearinghouse 46:195-199.

Grant, C. W. 1954. How students perceive the counselors role. Personnel Guid. J. 32:386-388.

Hertig, W. H. 1973. A model for improving articulation. Commun. Jr. Coll. J. 43:40-42.

James, G. A. 1969. The assessment of attitudes of Illinois public high school counselors toward the junior college. Diss. Abst. 30:2802-A.

Kane, F. H. 1972. Articulation of transfer students: The Iowa experience. Am. Biol. Teacher 34:530-531.

Kintzer, F. C. 1971. Junior college senior college articulation in the 70's. Coll. Univ. 46:587-605.

Kintzer, F. C. 1973. Middleman in Higher Education. Jossey-Bass, Inc., San Francisco.

Mayo, D. W. 1973. Attitudes of selected public high school counselors toward the North Carolina community college system. Unpublished EdD thesis. North Carolina State University at Raleigh.

Murress, R. E. 1969. Differential effects of studying versus teaching on teacher's attitudes. J. Educ. Research 63:185-189.

Nave, W. K. 1969. Adult basic education teacher trainees: Their characteristics, attitudes and values. Unpublished EdD thesis. North Carolina State University at Raleigh.

Price, C. D. 1971. Attitude changes of teachers during a three-week intensive adult education experience on school desegregation. Unpublished EdD thesis, North Carolina State University at Raleigh.

Rhyne, D. C. 1968. Attitude set, group learning, and attitude change. Unpublished EdD thesis, North Carolina State University at Raleigh.

Ridley, A. F. 1971. Inservice teacher education and the affective domain. Am. Voc. J. 46:46-48.

Sagehorn, H. 1960. Adolescent reaction to guidance. Education 81:707-709.

Smith, A. K. 1970. Bridging the gap-high school to community college. Jr. Coll. J. 40:33-36.

Smith, P. J., and W. Otto. 1969. Changing teacher attitudes toward teaching reading the the content areas. J. Reading 12:299-305.

Suchman, E. A. 1967. Evaluation Research, Principles and Practice in Public Service and Social Action Programs. Russell Sage Foundation, New York.

Thornton, J. W. 1966. The Community Junior College. John Wiley and Sons, Inc., New York.

Wolverton, B. and H. G. Padgett. 1973. Perceptions of a school guidance program's provision of vocational educational, and personal-emotional counseling. N. C. Pers. and Guid. J. 3:13-18.

Wolverton, J. B. 1975. The Effect of an Articulation Workshop on Public School Personnel Knowledge of and Attitudes Toward Educational Programs and Practices of the Sponsoring Technical Institute. Unpubliched EdD thesis. North Carolina State University at Raleigh.